

## Szépligetű's *Cyclaulax* types Deposited in the Hungarian Natural History Museum (Hymenoptera: Braconidae: Braconinae)

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*Abstract.*—The nine *Cyclaulax* species represented by types and deposited in the Museum Budapest as well as the type-species of the genus *Cyclaulax grandiceps* Cameron, housed in the Natural History Museum, London, are re-described and an identification key to the ten species is presented. Currently 11 *Cyclaulax* species are listed from the Neotropical Region. With 94 original figures.

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The genus *Cyclaulax* was created by Cameron (1911) on the basis of the new species, *C. grandiceps* Cameron from Guiana (former British Guiana). The first *Cyclaulax* species, however, were discovered by Szépligetű, who described a total of nine species originally ranged in the genus *Bracon* Fabricius (Szépligetű 1902, 1904, 1906). *Cyclaulax* belongs to the *Compsobracon* Ashmead group of genera (Quicke 1997, Leathers et al. 2005), its generic characters are listed below.

Quicke (1991) reviewed the non-European species of the subfamily Braconinae deposited in the Hungarian Natural History Museum (=Magyar Természettudományi Múzeum), Budapest and he was the first who recognized the true taxonomic position of these nine *Bracon* species (enumerated below).

In the present paper the nine *Cyclaulax* species by Szépligetű as well as the generic type-species *C. grandiceps* are re-described and an identification key compiled for the ten species to promote their reliable recognition. Quicke (1997: 152) indicated that *Cyclaulax* specimens are "frequently collected" in the Neotropical Region. The number of the *Cyclaulax* species, consequently, will considerably increase as a result of future taxonomic research.

Our knowledge of the Braconinae wasps of the Neotropical Region is less advanced. In this respect it is worthwhile to quote Quicke's (1997) assertions: "Comparatively few studies have been made on the New World fauna since the first two decades of this century." and "Undoubtedly, difficulties in identifying New World braconines in general and Neotropical species in particular have hampered and even discouraged work on their biology and hence possible use in biological or integrated control programs." The present contribution is a slight step towards the promotion of our improved knowledge of the Neotropical braconines.

### METHODS

*Abbreviations.*—The following abbreviations are applied in the re-descriptions of the species and in the identification key to *Cyclaulax* species (after van Achterberg 1993: 4–5):

**Eye:** OOL = ocellar-ocular line, i.e. shortest distance between hind ocellus and compound eye; POL = postocellar line, i.e. shortest distance between hind two ocelli.

**Fore wing:** *m-cu* = recurrent vein; *r* = first section of the radial vein; *1-M* = basal vein; *2-CU1* = second section of the discal vein; *2-SR* = first transverse cubital vein;

3-SR = second section of the radial vein;  
SR1 = third section of the radial vein; 1-SR+M = first section of the cubital vein.

**Hind wing:** *cu-a* = nervellus.

## TAXONOMY

### Genus *Cyclaulax* Cameron

*Cyclaulax* Cameron, 1911: 7, type species: *Cyclaulax grandiceps* Cameron, 1911. – Quicke 1989: 119 (taxonomy), 1997: 152 (in key).

*Generic features of Cyclaulax.*—(1) Face sculptured as in Figs 30–33 (Quicke 1997: 163), otherwise head and mesosoma polished. (2) Every tergite polished, second tergite antero-medially without an area bordered by furrow or not “pinched up”; third tergite usually clearly longer than second tergite (Figs 7, 23, 49, 75). (3) Basitarsus of fore leg laterally compressed or flattened (Figs 42, 63, 72). (4) Suture between tergites 2–3 trisinate, median sinuation deeply curved (Figs 7, 23, 49, 75). (5) Venation of forewing as in Fig. 6 (Quicke 1997: 159), vein 1-SR+M distinctly bent. (6) Eye somewhat protruding (Figs 1, 19, 38, 89). (7) Hypopygium pointed, ovipositor sheath long (Fig. 50, 76).

With the help of Quicke's key (1997) to the Nearctic–Neotropical genera of the subfamily Braconinae it is fairly easy to identify the genus *Cyclaulax*. The nearest genera to *Cyclaulax* are *Gracilbracon* Quicke, 1995 and *Cyclaulacidea* Quicke and Delobel, 1995.

*Cyclaulax* species are distributed in the Neotropical Region except Chile. In the world catalogue of Braconidae (Shenefelt 1978: 1682) only one, the type species, is listed for this genus. Szépligeti has described nine species originally assigned to the genus *Bracon* (Szépligeti 1902, 1904, 1906). They were transferred to *Cyclaulax* by Quicke (1991) except *B. flexuosus* and *B. linurus* with the taxonomic note “Belongs to an undescribed genus of the *Campsobraconoides* (= *Campsobracon*) group.” I do not concur with this opinion, i.e. I consider

these two species as representing also the genus *Cyclaulax*.

The following nine *Cyclaulax* species by Szépligeti (represented by type material or named specimens) are housed in the Hungarian Natural History Museum: *Cyclaulax atriceps* (Szépligeti, 1904), *C. binotatus* (Szépligeti, 1904), *C. enotatus* (Szépligeti, 1904), *C. flexuosus* (Szépligeti, 1902), *C. linurus* (Szépligeti, 1906), *C. lunatus* (Szépligeti, 1906), *C. mesonurus* (Szépligeti, 1906), *C. paraguayensis* (Szépligeti, 1904) and *C. sicilianensis* (Szépligeti, 1904).

By Mrs S. Lewis-Ryder's (London) kind assistance I had the opportunity to study the type species (*C. grandiceps* Cameron) of the genus *Cyclaulax* Cameron. In the taxonomic part of the present article its redescription is given.

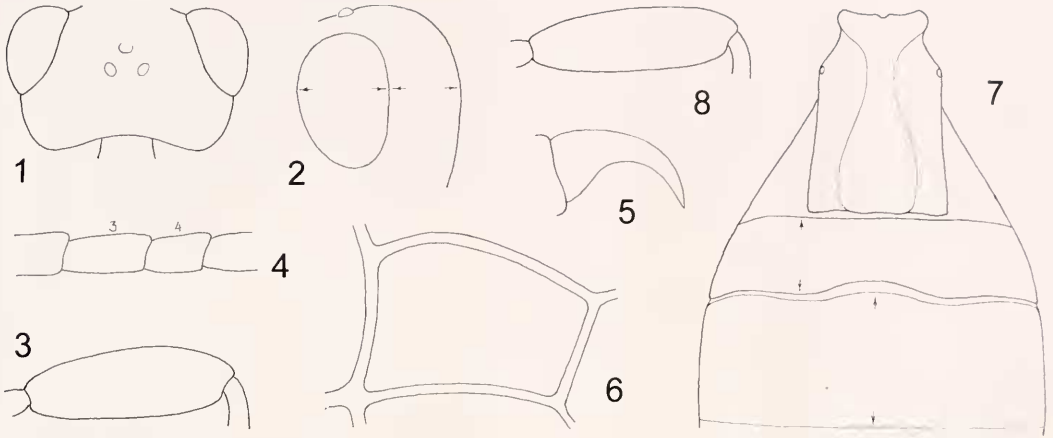
An eleventh species, *C. crassitarsis* (Brues, 1912), is listed in the checklist (see below).

### *Cyclaulax atriceps* (Szépligeti) (Figs 1–8)

*Bracon atriceps* Szépligeti, 1904: 184 ♀, type locality: “Peru: Marcapata”, female holotype (designated by Papp in 1969) in Magyar Természettudományi Múzeum, Budapest; examined. – Szépligeti 1906: 591 (in key). Shenefelt 1978: 1467 (as *Bracon atriceps*, literature up to 1906). Quicke 1991: 171 (as *Cyclaulax atriceps* comb. n., type depository).

*Designation of the female holotype of Bracon atriceps.*—(first label, printed) “Marcapata / Peru”; second label is the holotype card, third label is with the inventory number 1549 (second and third labels were attached by me); fourth label is with the actual name *C. atriceps* (Szépligeti) given by Quicke in 1989.

*Redescription of the female holotype of Bracon atriceps.*—Body 8 mm long. Antenna somewhat shorter than body and with 41 antennomeres (left antenna; right flagellum deficient, i.e. with 21 flagellomeres). Scape in outer-lateral view twice as long dorsally as broad apically (cf. Fig. 60). – Head in



Figs 1-8. *Cycloaulax atriceps* (Szépligeti), female lectotype: 1 = head in dorsal view, 2 = head in lateral view, 3 = hind femur, 4 = tarsomeres 3-4 of fore leg, 5 = claw, 6 = first discal cell of fore wing, 7 = tergites 1-3; female: 8 = hind femur

dorsal view (Fig. 1) less transverse, 1.7 times as broad as long, eye 1.5 times longer than temple, temple faintly receded. Eye in lateral view clearly 1.5 times as high as wide and 1.6 times wider than temple, latter evenly beyond eye (Fig. 2).

Mesosoma in lateral view 1.6 times as long as high. Hind femur 2.9 times as long as broad distally (Fig. 3). Fourth tarsomere of fore leg in lateral view 1.35 times as long as high (Fig. 4). Claw of hind leg as in Fig. 5. First discal cell high,  $1-M$  1.35 times as long as  $m-cu$ ,  $1-M$  bent, veins relatively thick (Fig. 6). – First tergite 1.4 times as long as broad behind, its scutum rather narrow; third tergite 1.6 times as long medially as second tergite laterally, suture between them less strongly trisinuate (Fig. 7, see arrows). Ovipositor sheath as long as hind tibia + tarsus combined.

Head and mesosoma black, mesoscutum and scutellum anteriorly reddish. Tergites 1-2 reddish, further tergi blackish to black. Legs black. Wings brown fumous, veins brown,  $1-SR+M$  yellowish.

Deviating features of two females (from the locality "Peru, Pachitea"). – Body 9 mm long. Both flagelli deficient. Head in dorsal view 1.6 times as broad as long (1 ♀). Hind femur 3.1 times as long as broad distally (Fig. 8).

Deviating features of one female (from the locality "Peru, Pachitea"). – Body 9 mm long. Both flagelli deficient. A light coloured (or albanic) specimen: mesoscutum, scutellum, tegula, upper fourth of mesopleuron and lateral corner of pronotum reddish yellow; fore leg: coxa, trochanters and tarsus yellowish, femur + tibia + fifth tarsomere dark brown.

Male and host unknown.

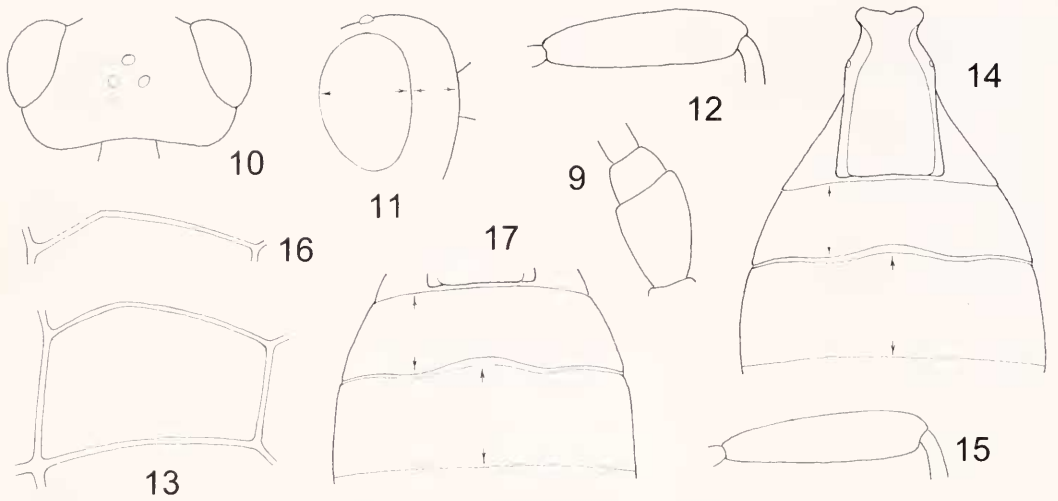
*Distribution*.—Peru.

*Taxonomic position*.—*C. atriceps* is closest to *C. enotatus*, their specific distinction is presented in the key-couplets 19(20) – 20(19).

### *Cycloaulax binotatus* (Szépligeti) (Figs 9-17)

*Bracon binotatus* Szépligeti, 1904: 184 (description) and 186 (in key) ♀, type locality: "Peru: Marcapata", female lectotype (+ six female paralectotypes designated by Papp in 1969, see Shenefelt l.c.) in Magyar Természettudományi Múzeum, Budapest; examined. – Szépligeti 1906: 590 (in key). Shenefelt 1978: 1470 (as *Bracon binotatus*, literature up to 1906). Quicke 1991: 171 (as *Cycloaulax binotatus* comb. n., type depositary).

*Type designation of Bracon binotatus*.—Designation of the female lectotype: (first



Figs 9–17. *Cyclaulax binotatus* (Szépligeti), female lectotype: 9 = scape in outer-lateral view, 10 = head in dorsal view, 11 = head in lateral view, 12 = hind femur, 13 = first discal cell of fore wing, 14 = tergites 1–3; female paralectotype: 15 = hind femur, 16 = vein 1-SR-M of fore wing, 17 = tergites 2–3

label, printed) “Marcapata / Peru”; Second label is the lectotype card, third label is with the inventory number 1542 (second and third labels were attached by me); fourth label is with the actual name *C. binotatus* given by Quicke in 1989. – Lectotype is in good condition: (1) micropinned; (2) left flagellum distally deficient, i.e. with 22 flagellomeres; (3) fore right wing basally torn.

*Designation of the six female paralectotypes.*—(first label, printed) “Marcapata / Peru”; second label is the lectotype card, third label is with the inventory numbers 1543–1548 (second and third labels were attached by me); fourth label is with the actual name *C. binotatus* given by Quicke in 1989. – Paralectotypes are in fairly good condition: micropinned, flagelli partly or entirely deficient.

*Taxonomic remark.*—Quicke (1991: 171) correctly indicated that the “specimens 1545–1548 inclusive appear to belong to a different species from specimens 1542–1544”. – The lectotype (no. 1542) and one female paralectotype (no. 1544) are representing the nominate form *Bracon binotatus* (albeit the paralectotype is “var. ♀” by Szépligeti l.c.). – One female paralectotype

(no. 1543) is near to *C. sicuaniensis* (Szépligeti) and supposedly representing a new *Cyclaulax* species (specimen in question is in poor condition, inappropriate for type designation). – Two female paralectotypes (nos 1545, 1547) are “var. 2. ♀” by Szépligeti (l.c.) and received the new name *C. lunatus* (Szépligeti) by me. – One female paralectotype (no. 1546) is in the Nationaal Natuurhistorisch Museum, Leiden and one female paralectotype (no. 1548) is in the Zoological Institute, Saint Petersburg as exchange material. The female paralectotype in Leiden does not represent the species *C. binotatus* (Szépligeti) and is near to *C. lunatus* (Szépligeti), however, deviating from it by the following features: first tergum less broad, head rather sub-cubic, fore leg entirely and tarsus of middle leg yellow; perhaps it will prove to be a new *Cyclaulax* species (both its flagelli missing), further specimens are needed to detect its true taxonomic status.

The true *Cyclaulax binotatus* (Szépligeti), represented by the female lectotype, one female paralectotype and one female (without type status), deviates from all other *Cyclaulax* species of Szépligeti in that its scape is not emarginated apically neither in



its outer- (Fig. 9) nor in its inner-lateral view. This feature combined with the very wide scutum of first tergite (Fig. 14) may serve in the future either for subgeneric separation within the genus *Cyclaulax* or to create a new genus. Again, more material is needed to decide this taxonomic problem.

*Redescription of the female lectotype of Bracon binotatus.*—Body 7.2 mm long. Antenna about as long as body and with 43 antennomeres (left flagellum deficient). Scape in outer-lateral view 1.6 times as long dorsally as broad apically (Fig. 9). — Head in dorsal view (Fig. 10) transverse, almost 1.9 times as broad as long, temple constricted, eye clearly twice as long as temple. Eye in lateral view 1.5 times as high as wide and clearly two times wider than temple (Fig. 11).

Mesosoma in lateral view 1.5 times as long as high. Hind femur 3.6 times as long as broad distally (Fig. 12). First discal cell less high, *1-M* 1.3 times as long as *m-cu*, *1-M* straight, *1-SR+M* broken in its run (Fig. 13). — First tergite 1.55 times as long as broad behind, its lateral part narrow, suture between tergites 2–3 weakly trisinate; third tergite somewhat more than one-fifth longer medially than second tergite laterally (Fig. 14, see arrows). Ovipositor sheath as long as hind tibia + tarsus combined.

Scape black, flagellum blackish. Head yellow, frons, vertex and face medially black, face below antennal socket pale yellow. Palpi yellow. Mesosoma reddish yellow, propodeum + metapleuron blackish brown. Tergites black; sternites ochreous, medio-longitudinally with a black streak. Fore leg yellow with faint brownish tint, middle and hind legs blackish brown. Wings brownish fumous, pterostigma and veins dark brown to brown.

Deviating features of one female paralectotype and one female. — Similar to the female lectotype. Body 6.5–7 mm long. Antenna with 46 antennomeres (paralectotype). Hind femur four times as long as

broad somewhat distally (Fig. 15). Vein *1-SR+M* of first discal cell broken angularly (Fig. 16). First tergite 1.6 times as long as broad behind. Third tergite one-fifth longer than second tergite (Fig. 17). Face below antennal socket entirely black (i.e. without yellow macula, female paralectotype) or face almost entirely reddish yellow (one female).

Male and host unknown.

*Distribution.*—Peru.

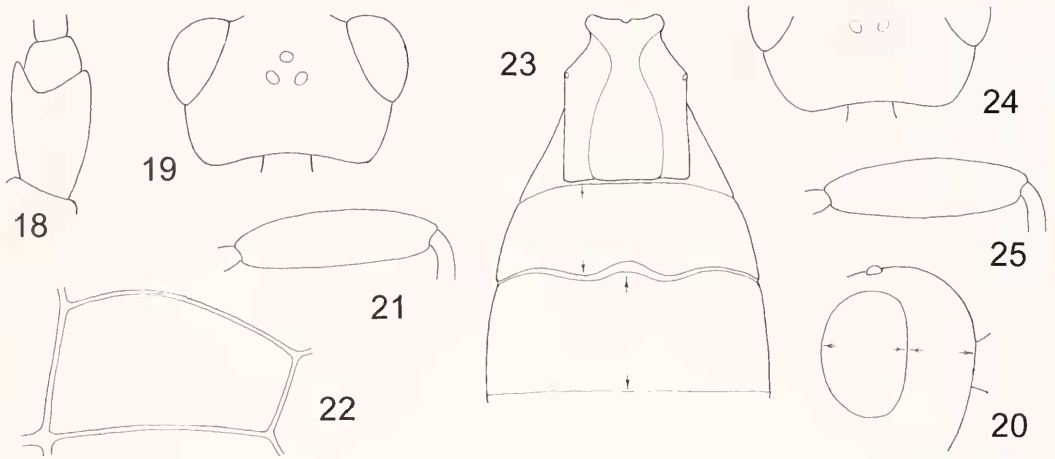
*Taxonomic position.*—*C. binotatus* stands alone with its clearly transverse head and constricted temple, see key-couplets 7(8)–8(7).

#### *Cyclaulax enotatus* (Szépligeti) (Figs 18–25)

*Bracon enotatus* Szépligeti, 1904: 184 ♀, type locality: "Peru: Marcapata", female lectotype (and three female paralectotypes designated by Papp in 1969, see Shenefelt l.c.) in Magyar Természettudományi Múzeum, Budapest; examined. — Szépligeti 1906: 591 (in key). Shenefelt 1978: 1481 (as *Bracon enotatus*, literature up to 1906). Quicke 1991: 171 (as *Cyclaulax enotatus* comb. n., type depository).

*Type designation of Bracon enotatus.*—Designation of the female lectotype and two female paralectotypes (as "var. ♀" in Szépligeti l.c.): (first label, printed) "Marcapata / Peru"; second label is the lectotype and paralectotype cards, third label is with the inventory number 1551 (lectotype) and 1552–1553 (paralectotypes) (second and third labels attached by me); fourth label is with the actual name *C. enotatus* given by Quicke in 1989. — Lectotype is in rather poor condition: (1) pinned by mesosoma; (2) both flagelli missing; (3) right hind leg (except coxa + trochanters) glued on a separate card, tarsomeres 2–5 of right middle leg missing; (4) right fore wing also glued on a separate card.

*Designation of one female paralectotype.*—(first label, printed) "Peru / Chanchal-majo"; second label is the paralectotype card, third label is with the inventory



Figs 18–25. *Cyclaulax enotatus* (Szépligeti), female lectotype: 18 = scape in outer-lateral view, 19 = head in dorsal view, 20 = head in lateral view, 21 = hind femur, 22 = first discal cell of fore wing, 23 = tergites 1–3; female paralectotype: 24 = temple in dorsal view, 25 = hind femur

number 1552 (both labels attached by me); fourth label is with the actual name *C. enotatus* (Szépligeti) given by me. – The three paralectotypes are also in poor condition: (1) pinned by mesosoma; (2) flagelli either missing or deficient; (3) legs partly missing.

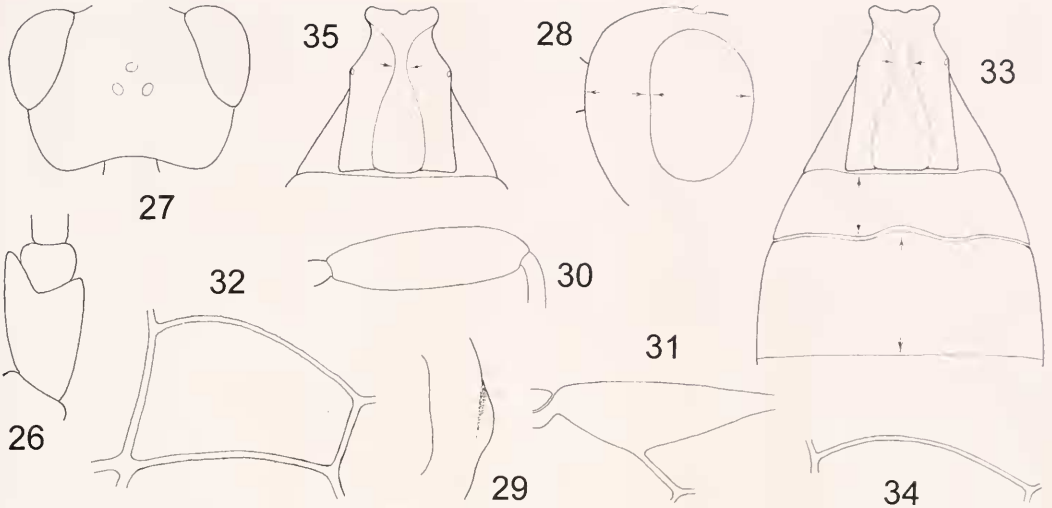
*Taxonomic remark.*—The two female paralectotype (“var. ♀” by Szépligeti, from Peru: Marcapata) do not represent *C. enotatus*, they belong to *C. lunatus* (Szépligeti) and I labelled them accordingly. One female paralectotype is in Museum Budapest and one female paralectotype is in Museum Leiden (as exchange material). – The third female paralectotype, from Peru: Chanchalmajo, is a true *C. enotatus* and is in the Museum Budapest.

*Redescription of the female lectotype of Bracon enotatus.*—Body 8 mm long. Scape in outer-lateral view 1.7 times as long dorsally as broad apically (Fig. 18). Both flagelli missing. – Head in dorsal view (Fig. 19) transverse, 1.6 times as broad as long, temple narrowing, eye almost 1.5 times (or clearly one-third) longer than temple. Eye in lateral view 1.5 times as high as wide and 1.3 times wider than temple, temple beyond eye evenly broad (Fig. 20).

Mesosoma in lateral view 1.75 times as long as high. Hind femur 3.6 times as long as broad medially (Fig. 21). First discal cell less high, *1–M* nearly 1.6 times as long as *m-cu*, *1–M* straight (Fig. 22). – First tergite 1.2 times as long as broad behind, scutum of tergite wide; second tergite less short, third tergite nearly 1.4 times as long medially as second tergite laterally (Fig. 23, see arrows). Suture between tergites 2–3 trisinate (Fig. 23). Ovipositor sheath nearly as long as hind tibia + tarsus combined.

Scape, pedicel, head, legs and tergi black. Palpi dark brown, its ultimate joint light brown. Mesosoma testaceous; propodeum, metapleuron and mesosternum black. Tegula also testaceous. Fore coxa yellowish. Wings brownish fumous, pterostigma and veins brown.

*Deviating features of one female paralectotype of Bracon enotatus (locality: Peru, Chanchalmajo).*—Similar to the female lectotype. Body 9 mm long. Both flagelli deficient, right flagellum with 28 and left flagellum with 7 flagellomeres. First flagellomere 1.4 times and 28th flagellomere cubic, i.e. as long as broad. Temple in dorsal view somewhat more narrowing (Fig. 24). Hind femur 3.3 times as long as



Figs 26–35. *Cyclaulax flexuosus* (Szépligeti), female lectotype: 26 = scape in outer-lateral view, 27 = head in dorsal view, 28 = head in lateral view, 29 = lump of left temple in lateral view, 30 = hind femur, 31 = pterostigma and vein *r* of fore wing, 32 = first discal cell of fore wing, 33 = tergites 1–3; male paralectotype: 34 = vein 1–SR–M of fore wing, 35 = first tergite

broad medially (Fig. 25). Cheek yellow. Mesosternum testaceous.

Male and host unknown.

*Distribution*.—Peru.

*Taxonomic position*.—*C. enotatus* is nearest to *C. atriceps* (Szépligeti), the distinction is presented in key-couplets 19(20)–20(19).

*Cycaulax flexuosus* (Szépligeti)  
(Figs 26–35)

*Bracon flexuosus* Szépligeti, 1902: 42 ♂, type locality: "Venezuela: Merida", male lectotype (and one male paralectotype, designated by Papp in 1969) in Magyar Természettudományi Múzeum, Budapest; examined. – Szépligeti 1904: 187 (in key), 1906: 591 (in key). Shenefelt 1978: 1485 (as *Bracon flexuosus*, literature up to 1906). Quicke 1991: 172 (type depository).

*Type designation of Bracon flexuosus*.—Designation of the male lectotype: (first label) "Merida" (printed) / "Venezuela" (L. Biró's manuscript); (second label) "Br. flexuosus" (Szépligeti's manuscript) / "det. Szépligeti" (printed); third label is my lectotype card, fourth label is with the inventory number 1560 (third and fourth

labels were attached by me); fifth label is with the actual name *C. flexuosus* given by me. – Lectotype is in good condition: (1) pinned by mesosoma; (2) left flagellum missing, right flagellum deficient.

Designation of the male paralectotype: (first label) "Merida" (printed) / "Venezuela" (L. Biró's manuscript); second label is with the paralectotype card, third label is with the inventory number 1561 (second and third labels were attached by me); fourth label is with the actual name *C. flexuosus* given by me. – Paralectotype is in fairly good condition: (1) pinned by mesosoma; (2) both flagelli distally deficient; (3) left pair of wings missing.

*Redescription of the male lectotype of Bracon flexuosus*.—Body 7.5 mm long. Right flagellum with 33 flagellomeres (left flagellum missing). Scape in outer-lateral view almost 1.6 times as long dorsally as broad apically, deeply emargined, ventrally as long as dorsally (Fig. 26). First flagellomere twice and 33rd flagellomere subcubic, i.e. a bit longer than broad. – Head in dorsal view (Fig. 27) subcubic, 1.5 times as broad as long, eye 1.66 times length of temple, temple moderately rounded. Eye in lateral

view almost 1.5 times as high as wide and 1.6 times wider than temple, latter ventrally narrowing (Fig. 28, see arrows). Left temple ventrally with a (teratological?) small lamp (Fig. 29).

Mesosoma in lateral view almost twice as long as high. Hind femur less broadening distally, 3.3 times as long as broad medially (Fig. 30). Vein *r* of fore wing clearly longer than half width of pterostigma (Fig. 31). First discal cell high, 1-*M* weakly bent and 1.7 times as long as *m-cu* (Fig. 32). – First tergite 1.4 times as long as broad behind, its scutum more narrowing anteriorly; third tergite 1.7 times longer medially than second tergite laterally (Fig. 33, see arrows), suture between tergites 2-3 weakly trisinate (Fig. 33).

Scape and pedicel rusty brown, flagellum dark brown. Head, mesosoma and legs rusty brown; mesosoma testaceous, apically blackish. Palpi light brown to brown. Tegula rusty brown. Fore tarsus yellow. Wings brown fumous, pterostigma brown, vein brown to light brown.

*Redescription of the male paralectotype of Bracon flexuosus.*—Similar to the male lectotype. Body 6 mm long. Both flagelli distally deficient: right flagellum with 17 and left flagellum with 14 flagellomeres. Vein 1-SR-M of first discal cell slightly less bent (Fig. 34). First tergite clearly 1.3 times as long as broad behind, its scutum somewhat narrowing (Fig. 35).

Female and host unknown.

*Distribution.*—Venezuela.

*Taxonomic position.*—*C. flexuosus* is nearest to *C. paraguayensis* (Szépligeti) and to *C. sicuanimensis* (Szépligeti), their distinction is presented in the key-couplets 14(15) – 17(16).

### *Cyclaulax grandiceps* Cameron (Figs 36–50)

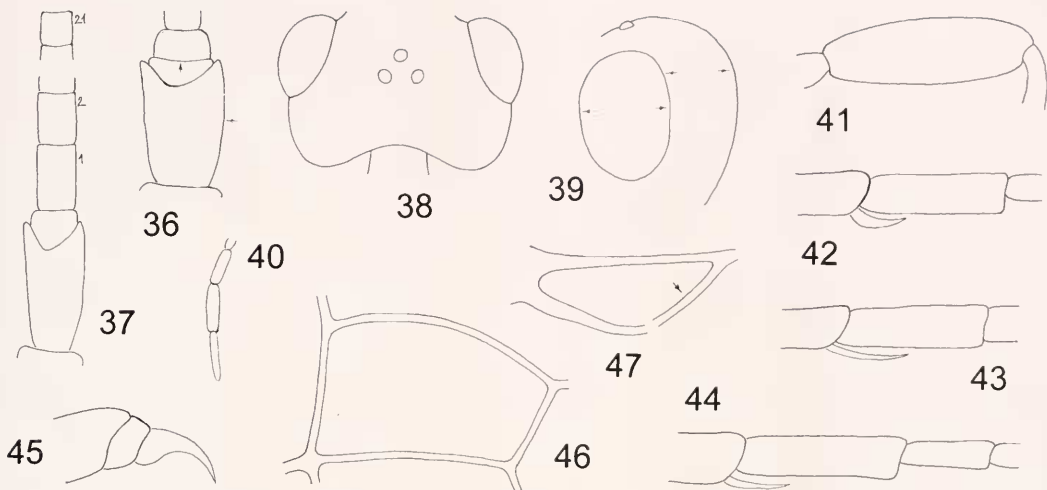
*Cyclaulax grandiceps* Cameron, 1911: 7 ♀ (syntype series one female), type locality: British Guiana, female holotype (=“Type”) in The Natural History Museum, London; examined. – Shenefelt 1978: 1682 (as *Cyclaulax grandiceps*, literature up to 1911).

*Designation of the female holotype* (=“Type”) of *Cyclaulax grandiceps*.—(first round label with red frame) “Type” (printed); (second label) “B. M. Type Hym.” (printed) “3.c.152” (handscript); (third great label with Cameron’s handscript) “Cyclaulax / grandiceps / Cam. Type / Br. Guyana”; (fourth label, printed) “P. Cameron Coll. 1914–110.” – The holotype is in fairly poor condition: (1) pinned by mesosoma; (2) left flagellum missing, right flagellum deficient; (3) left fore wing missing, right fore wing glued separately on a small card; (4) right fore leg stuck to right mesopleuron; (5) missing: tarsi of left fore and left hind legs, fifth tarsomere of right fore tarsus and tarsomeres 2–5 of right middle tarsus.

*Redescription of the female holotype of Cyclaulax grandiceps.*—Body 12 mm long. Scape cylindrical, in outer-lateral view twice as long dorsally (Fig. 36, see horizontal arrow) as broad apically, ventrally and dorsally of equal length, its outer side deeply emargined (Fig. 37), its inner side with an apico-median ledge (Fig. 36, see vertical arrow); pedicel short. Right flagellum deficient, i.e. with 21 flagellomeres. First flagellomere 1.5 times, second flagellomere 1.2 times as long as broad apically, further flagellomeres cubic (Fig. 37). – Head in dorsal view (Fig. 38) less transverse, 1.6 times as broad as long, eye somewhat protruding and almost 1.4 times length of temple, temple moderately rounded, occiput excavated. Ocelli near to each other, OOL three times as long as POL. Eye in lateral view 1.5 times as high as wide, one-third wider than temple medially, temple ventrally narrowing (Fig. 39, see arrows). Face with similar sculpture to that of Fig. 32 (cf. Quicke 1997: 163); otherwise head polished. Fourth maxillar palpal joint somewhat thicker and shorter than fifth joint (Fig. 40).

Mesosoma in lateral view almost twice as long as high, polished. Notaulix distinct weakly. Propodeum polished. – Hind femur three times as long as broad distally

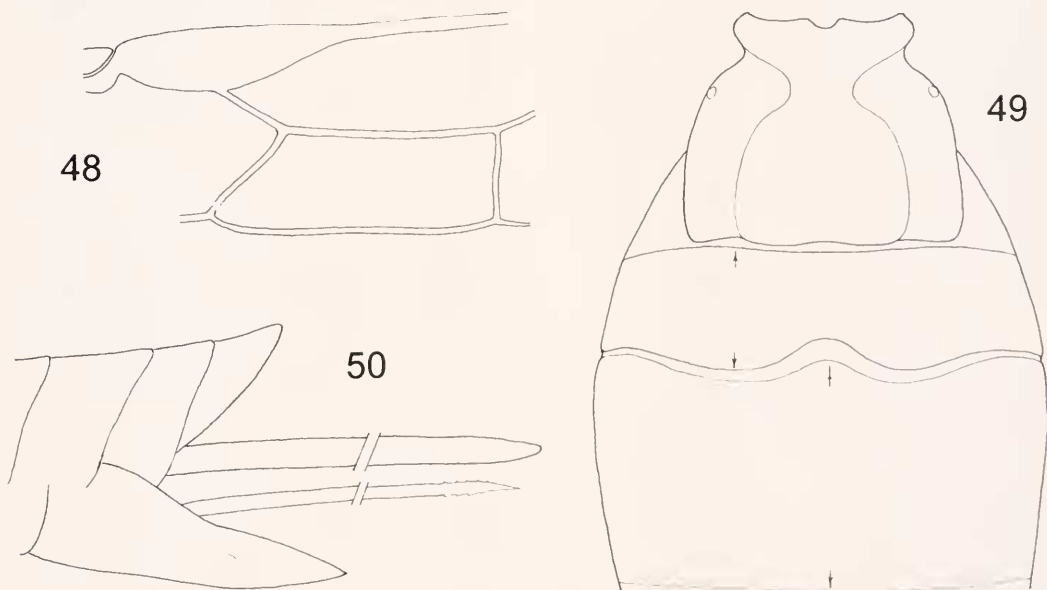




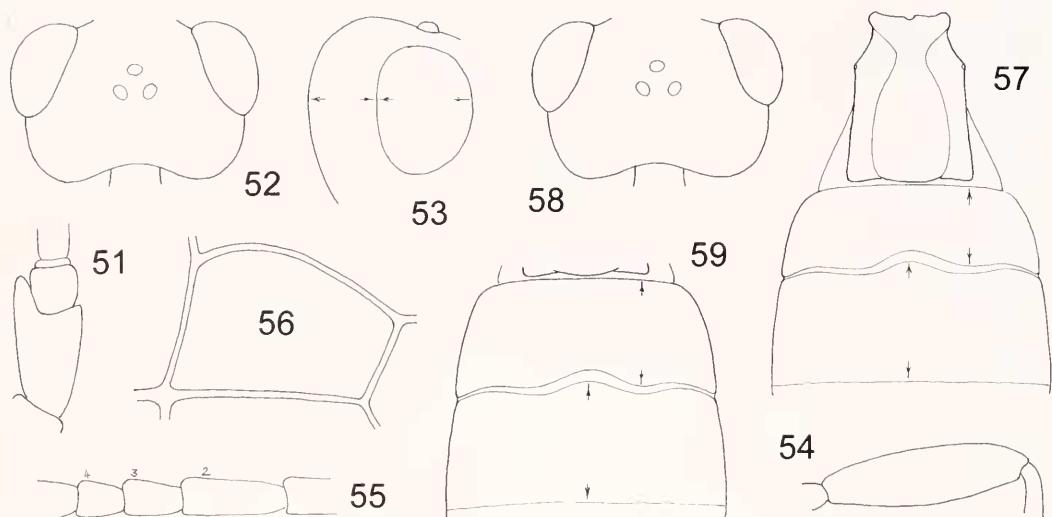
Figs 36-47. *Cyclaulax grandiceps* Cameron, holotype: 36 = scape in outer-lateral view, 37 = scape in inner-lateral view and flagellomeres 1-2 + 21, 38 = head in dorsal view, 39 = head in lateral view, 40 = maxillar palpal joints 3-5, 41 = hind femur, 42 = basitarsus + spur of fore leg, 43 = basitarsus + spur of middle leg, 44 = basitarsus, spur and second flagellomere of hind leg, 45 = claw, 46 = first discal cell of fore wing, 47 = subbasal cell with vein *cu-a* of hind wing

(Fig. 41). Inner spur of middle tibia slightly longer than (Fig. 43) and that of hind tibia less than half as long as basitarsus, latter somewhat thick (Fig. 44). Claw curved, basally widening (Fig. 45).

Fore wing as long as body. Pterostigma (Fig. 48) 3.6 times as long as wide and issuing *r* proximally from its middle, *r* as long as width of pterostigma. Second submarginal cell long, 3-SR almost twice



Figs 48-50. *Cyclaulax grandiceps* Cameron, holotype: 48 = pterostigma and first submarginal cell of fore wing, 49 = tergites 1-3, 50 = posterior end of metasoma with hypopygium and ovipositor apparatus



Figs 51–59. *Cyclaulax linurus* (Szépligeti), female lectotype: 51 = scape in outer-lateral view, 52 = head in dorsal view, 53 = head in lateral view, 54 = hind femur, 55 = tarsomeres 2–4 of fore leg, 56 = first discal cell of fore wing, 57 = tergites 1–3; female paralectotype: 58 = head in dorsal view, 59 = tergites 2–3

as long as 2-SR, SR1 straight, somewhat longer than 3-SR and reaching tip of wing. First discal cell less high, 1-M 1.5 times length of *m-cu*, 1-SR+M clearly bent (Fig. 46). – Hind wing: *cu-a* as in Fig. 47 (see arrow).

First tergite (Fig. 49) somewhat broader behind than long, scutum convex, lateral part of tergite fairly wide. Second tergite transverse, 3.4 times as broad behind as long laterally; third tergite 1.8 times longer medially than second tergite laterally (Fig. 49, see arrows); suture between them deep, smooth, trisinate, median sinuation the deepest (Fig. 9). Every tergite polished. Hypopygium pointed, ovipositor sheath long, as long as hind femur + tibia + tarsomeres 1–2 combined (Fig. 50).

Ground colour of body reddish yellow. Head and antenna black, flagellum with very weak brownish suffusion. Labrum and cheek ferruginous, palpi blackish brown to brown. Pronotum and -sternum black to blackish. Last two metasomal segments black. Legs black, fore coxa + trochanters reddish yellow, tarsomeres of middle leg apically rusty. Wings dark brown fumous, pterostigma blackish, veins proximo-distally black to brown.

Male and host unknown.

*Distribution*.—Guiana

*Taxonomic position*.—*C. grandiceps* Cameron differs from all other *Cyclaulax* species by its very broad first tergite; *C. lunatus* (Szépligeti) and *C. paraguayensis* (Szépligeti) appear to be the nearest to *C. grandiceps* with their relatively broad first tergites; see also the key-couplets 1(6) – 5(4).

### *Cyclaulax linurus* (Szépligeti) comb. n.

(Figs 51–59)

*Bracon linurus* Szépligeti, 1906: 591 (in key) and 593 (description) ♀, type locality: "Bolivia: Mapiří", female lectotype (+ one female paralectotype, designated by Papp in 1969) in Magyar Természettudományi Múzeum, Budapest; examined. – Shenefelt 1978: 1503 (as *Bracon linurus*, literature up to 1906). Quicke 1991: 172 (taxonomy, type depository).

*Type designation of Bracon linurus*.—Designation of the female lectotype of: (first label, printed) "Bolivia / Mapiří"; second label is the lectotype card, third label is with the inventory number 993 (second and third labels were attached by me); fourth label is with the actual name *C.*

*linurus* (Szépliget) given by me. – Lectotype is in fairly poor condition: (1) pinned by mesosoma; (2) both flagelli deficient distally; (3) right fore wing antero-medially damaged, distal third part of left fore wing glued on a separate small card; (4) left ovipositor sheath broken (present its short basal part); (5) head broken, glued to prosoma.

*Designation of the female paralectotype.*—(first label, printed) “Peru / Mercapata”; second label is the paralectotype card, third label is with the inventory number 994 (second and third labels were attached by me); fourth label is with the actual name *C. linurus* (Szépliget) given by me. – Paralectotype is in fair condition: (1) micropinned by mesosoma; (2) both flagelli deficient distally; (3) right hind wing creased.

*Redescription of the female lectotype of Bracon linurus.*—Body 8 mm long. Scape in outer-lateral view 1.7 times as long dorsally as broad apically (Fig. 51). Both flagelli deficient, right flagellum with 27 and left flagellum with 18 flagellomeres. First flagellomere twice and 27th flagellomere subcubic, i.e. a bit longer than broad. – Head in dorsal view (Fig. 52) less transverse, clearly 1.5 times as broad as long, eye 1.4 times longer than temple, temple clearly rounded. Eye in lateral view 1.3 times as high as wide and twice wider than temple, latter beyond eye evenly broad (Fig. 53, see arrows).

Mesosoma in lateral view 1.6 times as long as high. Hind femur 3.6 times as long as broad distally (Fig. 54). Tarsomeres 2–4 of fore leg in lateral view short, third tarsomere 1.6 times as long as high and fourth tarsomere cubic, a bit longer than high distally (Fig. 55). First discal cell less high, 1–M 1.5 times as long as *m-cu*, 1–M just bent (Fig. 56). – First tergite clearly 1.3 times as long as broad behind, its scutum fairly wide, i.e. lateral margin of tergite less wide; third tergite 1.5 times as long medially as long second tergite laterally; suture between them medially deep

(Fig. 57, see arrows). Ovipositor sheath longer than body.

Ground colour of body black; legs also black, fore tarsus yellow, middle and hind tarsi dark brownish black. Scape and flagellum black. Mesoscutum, scutellum and tergites 1–2 testaceous. Wings brown fumous, pterostigma and veins dark brown to brown.

*Redescription of the female paralectotype of Bracon linurus.*—Similar to the female lectotype. Body 7.5 mm long. Head in dorsal view 1.5 times as broad as long, eye 1.3 times longer than temple, temple slightly less rounded (Fig. 58). Second tergite almost as long as third tergite (Fig. 59, see arrows). Pronotum and propodeum with reddish yellow suffusion, mesoscutum and scutellum reddish yellow.

Male and host unknown.

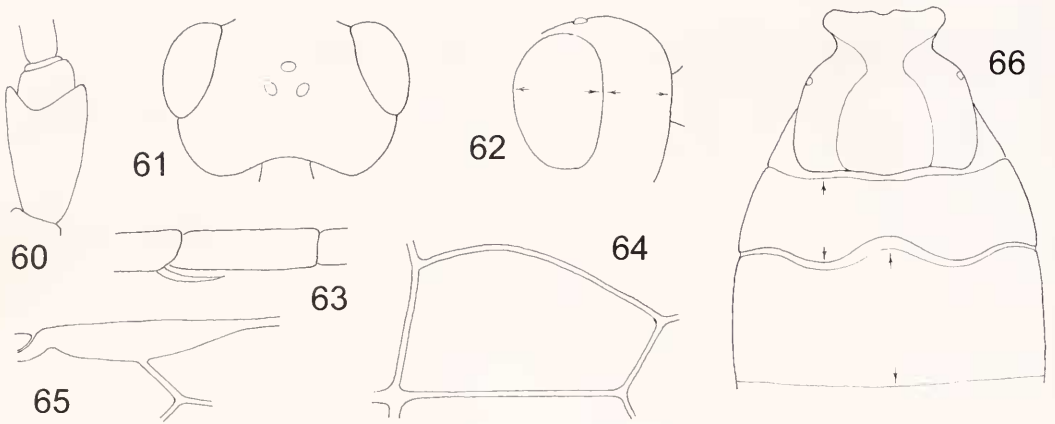
*Distribution.*—Bolivia, Peru.

*Taxonomic position.*—*C. linurus* is nearest to *C. mesonurus* (Szépliget), their specific distinction is presented in the key-couplets 10(11) – 11(10).

### *Cyclaulax lunatus* (Szépliget) (Figs 60–66)

*Bracon lunatus* Szépliget, 1906: 591 (in key) and 594 (description) ♀, type locality: “Peru: Pachitea”, female lectotype (and three female paralectotypes, designated by Papp in 1969, see Shenefelt l.c.), in Magyar Természettudományi Múzeum, Budapest and one female paralectotype in Nationaal Natuurhistorisch Museum, Leiden as exchange. – Shenefelt 1978: 1504 (as *Bracon lunatus*, literature up to 1906). Quicke 1991: 172 (as *Cyclaulax lunatus* comb. n., type depository).

*Type designation of Bracon lunatus.*—Designation of the female lectotype: (first label, printed) “Peru / Pachitea”, second label is the lectotype card, third label is with the inventory number 1555 (second and third labels were attached by me); fourth label is with the actual name *Cyclaulax lunatus* (Szépliget) given by Quicke in 1989. – Lectotype is in fairly good condition: (1) pinned by mesosoma; (2) right flagellum



Figs 60–66. *Cyclaulax lunatus* (Szépligeti): 60 = scape in outer-lateral view, 61 = head in dorsal view, 62 = head in lateral view, 63 = basitarsus and spur of middle leg, 64 = pterostigma and vein *r* of fore wing, 65 = first discal cell of fore wing, 66 = tergites 1–3

missing, left flagellum distally deficient; (3) right fore wing glued on a separate card.

*Designation of the four female paralectotypes.*—(three females in Budapest Museum, one female in Museum Leiden): (first label, printed) "Peru / Pachitea"; second label is the paralectotype card, third label is with the inventory numbers 1556–1558 (in Budapest); fourth (in Budapest) and third (in Leiden) labels is with the actual name *Cyclaulax lunatus* (Szépligeti) given by Quicke in 1989. – The four paralectotypes are in good condition: (1) pinned by mesosoma; (2) flagelli partly missing, partly deficient.

*Taxonomic rectification.*—Two female paralectotypes of *Bracon binotatus* Szépligeti (in Museum Budapest, Nos 1545 and 1547) and two female paralectotypes of *B. enotatus* var. ♀ (one female in Museum Budapest, No. 1553, one female in Museum Leiden) proved to belong to *B. lunatus* – now to the genus *Cyclaulax*. For further comments see "Taxonomic remarks" under these two species.

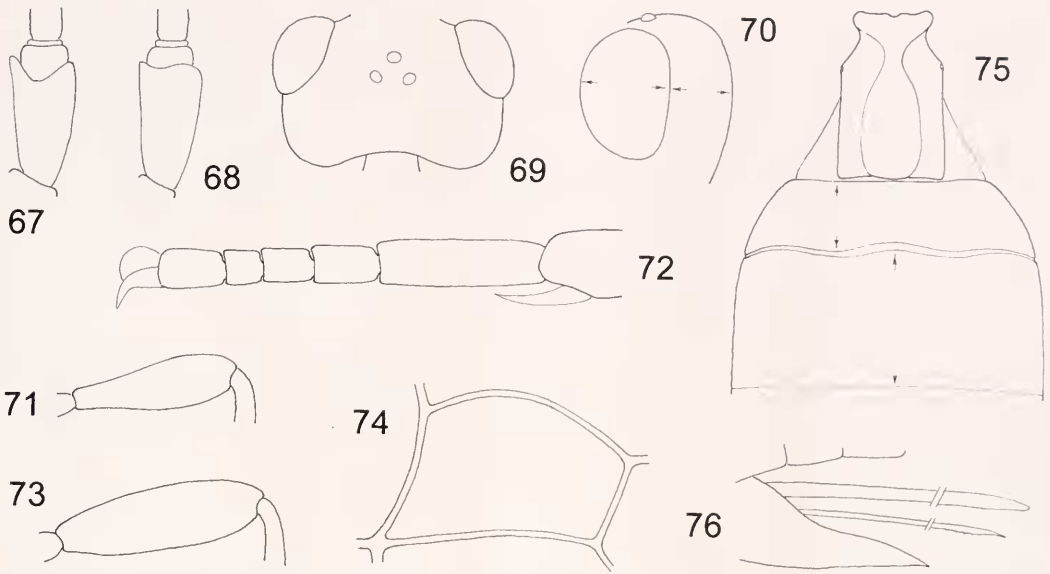
*Redescription of the female lectotype of Bracon lunatus.*—Body 10 mm long. Left flagellum broken distally, i.e. with 24 flagellomeres. Outer-lateral side of scape as in Fig. 60. First flagellomere 1.75 times and 24th flagellomere cubic, i.e. as long as

broad. – Head in dorsal view (Fig. 61) less transverse, nearly 1.6 times as broad as long, eye 1.7 times as long as temple, temple rounded. Eye in lateral view 1.6 times as high as wide and 1.46 times wider than temple, latter evenly broad beyond eye (Fig. 62).

Mesosoma in lateral view almost twice as long as high. Hind femur 3.1 times as long as broad medially. Inner spur of middle tibia shorter than half basitarsus (Fig. 63). Vein *r* somewhat longer than width of pterostigma and issuing from its middle (Fig. 65). First discal cell less high, 1–*M* 1.5 times as long as *m-cu*, 1–*M* straight and clearly not parallel with *m-cu*, 2–*Cu1* straight (Fig. 64). – First tergite as long as broad behind, broadest at its two-thirds, its scutum and lateral part fairly wide; suture between tergites 2–3 deep and trisinate; third tergite 1.65 times as long medially as long second tergite laterally (Fig. 66). Ovipositor sheath longer than hind tibia + tarsus combined.

Antenna blackish. Head black, median granulose field of face with luniform yellow macula, cheek also yellow, palpi brown. Ground colour of mesosoma testaceous, pronotum + prosternum and propodeum + metapleuron blackish to black. Fore leg rather dark brown, trochanters





Figs 67–76. *Cyclaulax mesonurus* (Szépligeti): 67 = scape in outer-lateral view, 68 = scape in inner-lateral view, 69 = head in dorsal view, 70 = head in lateral view, 71 = fore femur, 72 = tarsus of first leg, 73 = hind femur, 74 = first discal cell of fore wing, 75 = tergites 1–3, 76 = hypopygium and ovipositor apparatus

and tarsus with reddish suffusion. Middle and hind legs black to dark brown, middle tarsus faintly reddish. Tergites 1–3 reddish and laterally blackish to black, further tergites black. Wings brown fumous, pterostigma blackish brown, veins proximodistally blackish to light brown.

Deviating features of four paralectotypes of *B. lunatus*, (three female in Museum Budapest, one female in Museum Leiden, from Peru: Pachitea). Two female paralectotypes of *B. binotatus* var. ♀ Szépligeti (in Museum Budapest), two female paralectotypes of *B. enotatus* var. ♀ Szépligeti (one female in Museum Budapest, one female in Museum Leiden, from Peru: Marcapata) and one female (in Museum Leiden, from Peru: Pachytea) (the paralectotypes of *B. binotatus* and *B. enotatus* are representing *B. lunatus*, present rectification); total nine female specimens. – Similar to the female lectotype. Body 8–10 mm. Flagelli mainly distally deficient, rarely missing. Head in dorsal view 1.53–1.6 times as broad as long. Hind femur 3.1–3.5 times as long as broad medially. First tergite slightly broader

behind than long (2 ♀). Tergites 1–3 blackish with reddish suffusion (3 ♀).

Male and host unknown.

*Distribution*.—Peru.

*Taxonomic position*.—*C. lunatus* (Szépligeti) is nearest to *C. grandiceps* Cameron and *C. paraguayensis* (Szépligeti), their distinction is presented in the key-couplets 1(6) – 7(8).

*Cyclaulax mesonurus* (Szépligeti)  
(Figs 67–76)

*Bracon mesonurus* Szépligeti, 1906: 591 (in key) and 593 (description) ♀, type locality: "Bolivien: Mapiri", female lectotype (designated by Papp in 1969) in Magyar Természettudományi Múzeum, Budapest; examined. – Shenefelt 1978: 1511 (as *Bracon mesonurus*, literature up to 1906). Quicke 1991: 172 (as *Cyclaulax mesonurus* comb. n., type depository).

*Designation of the female holotype of Bracon mesonurus*.—(first label, printed) "Bolivia / Mapiri"; second label is the lectotype card, third label is with the inventory number 1541 (second and third labels were attached by me), fourth label is

with the actual name *Cyclaulax mesonurus* (Szépligeti) given by Quicke in 1989. – Holotype is in good condition: (1) pinned by the mesosoma; (2) both flagelli deficient distally; (3) tarsus of left fore leg missing; (4) damaged: distal end of costal-subcostal vein (proximal from pterostigma) of right fore wing, membrane between median (*M* + *Cu1*) and anal veins (*1-1A*) of left fore wing longitudinally (i.e. parallel with these two veins) splitted.

*Redescription of the female holotype of Bracon mesonurus.*—Body 9 mm long. Scape in outer-lateral view just less than 1.9 times as long as broad apically (Fig. 67), in inner-lateral view as in Fig. 68. Both flagelli deficient, right flagellum with 25 and left flagellum with 14 flagellomeres. First flagellomere almost 1.5 times as long as broad and 25th flagellomere cubic, i.e. just broader than long. – Head in dorsal view (Fig. 69) less transverse, 1.57 times as broad as long, eye 1.37 times as long as temple, temple moderately rounded. Eye in lateral view 1.5 times as high as wide and 1.4 times wider than temple, latter beyond eye faintly narrowing ventrally (Fig. 70).

Mesosoma in lateral view twice as long as high. Fore femur 3.2 times as long as broad distally (Fig. 71). Tarsomeres 2–4 of fore leg in lateral view short, third tarsomere 1.36 times as long as high apically and fourth tarsomere cubic (Fig. 72). Hind femur 3.1 times as long as broad distally (Fig. 73). Inner spur of middle tibia shorter than half length of basitarsus (cf. Fig. 42). – First discal cell less high, *1-M* 1.5 times as long as *m-cu*, *1-M* bent, *1-SR+M* and *2Cu1* equal in length (Fig. 74). – First tergite clearly 1.5 times as long as broad behind, scutum narrow, i.e. lateral part of tergite wide; third tergite medially nearly twice as long as second tergite laterally; suture between them less trisinate and less deep (Fig. 75). Hypopygium pointed, ovipositor sheath somewhat longer than hind tibia + tarsus combined (Fig. 76).

Scape black, pedicel + flagellum brownish black. Head black, palpi dark brown.

Mesosoma testaceous; blackish to black: prosoma, propodeum and metapleuron. Tegula testaceous. Tergites 1–3 reddish yellow, rest of tergites blackish to black. Legs black; fore tibia brownish yellow, fore tarsus yellow, middle tibia brown, middle tarsus yellow, hind tibia + tarsus brownish black. Wings brown fumous, pterostigma dark brown, veins brown to light brown.

Male and host unknown.

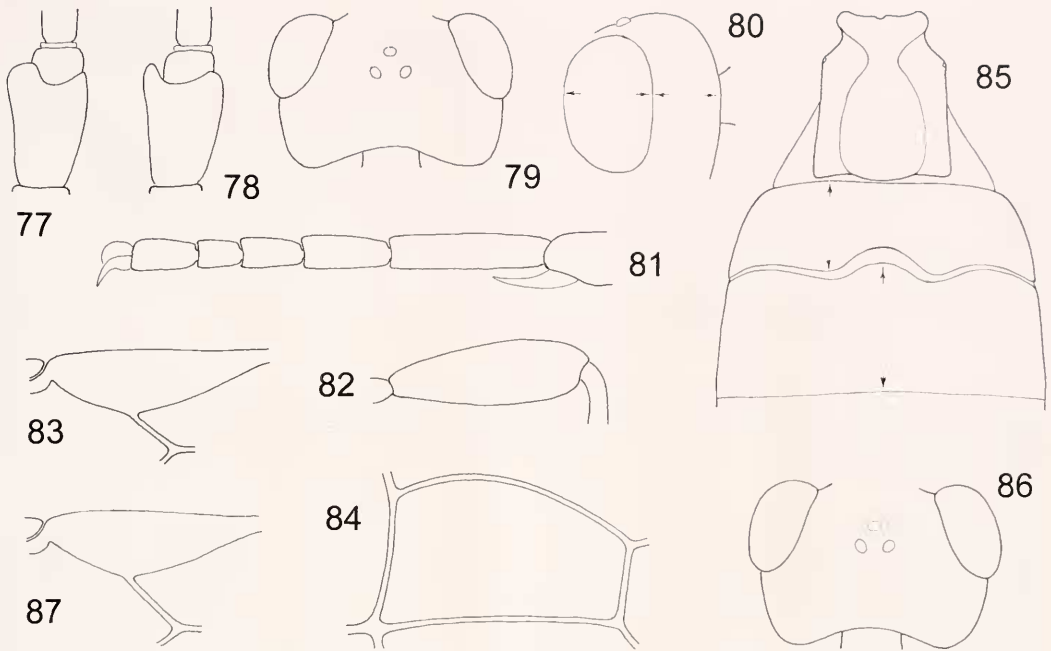
*Distribution.*—Bolivia.

*Taxonomic position.*—*C. mesonurus* (Szépligeti) is nearest to *C. linurus* (Szépligeti), their distinction is in key-couplets 10(11) – 11(10).

*Cyclaulax paraguayensis* (Szépligeti)  
(Figs 77–87)

*Bracon paraguayensis* Szépligeti, 1914: 184 ♀, type locality: "Paraguay", female lectotype (+ one female paralectotype designated by Papp in 1969, see Shenefelt 1978 l.c.) in Magyar Természettudományi Múzeum, Budapest; examined. – Szépligeti 1906: 590 (in key). Shenefelt 1978: 1523 (as *Bracon paraguayensis*, literature up to 1906). Quicke 1991: 172 (as *Cyclaulax paraguayensis* comb. n., type depository).

*Type designation of Bracon paraguayensis.*—Designation of the female lectotype and one female paralectotype: (first label, my manuscript) "Paraguay / South America" (reverse label of the lectotype) "Paraguay" (with Szépligeti's manuscript); second label is the lectotype and paralectotype cards, respectively, third label is with the inventory numbers 1538 (lectotype) and paralectotype (1539) (second and third labels were attached by me); fourth label is with the actual name *Cyclaulax paraguayensis* (Szépligeti) given by Quicke in 1989. – Lectotype is in fairly good condition: (1) pinned by the mesosoma; (2) both flagelli deficient distally; (3) tarsomeres 3–5 of left middle leg missing; (4) left pair of wings longitudo-distally somewhat creased. – Paralectotype is in poor condition: (1) pinned by the mesosoma; (2) both flagelli deficient distally; (3) metasoma



Figs 77–87. *Cyclaulax paraguayensis* (Szépligeti), female lectotype: 77 = scape in outer-lateral view, 78 = scape in inner-lateral view, 79 = head in dorsal view, 80 = head in lateral view, 81 = tarsus of first leg, 82 = hind femur, 83 = pterostigma and vein *r* of fore wing, 84 = first discal cell of fore wing, 85 = tergites 1–3; female paralectotype: 86 = head in dorsal view, 87 = pterostigma and vein *r* of fore wing

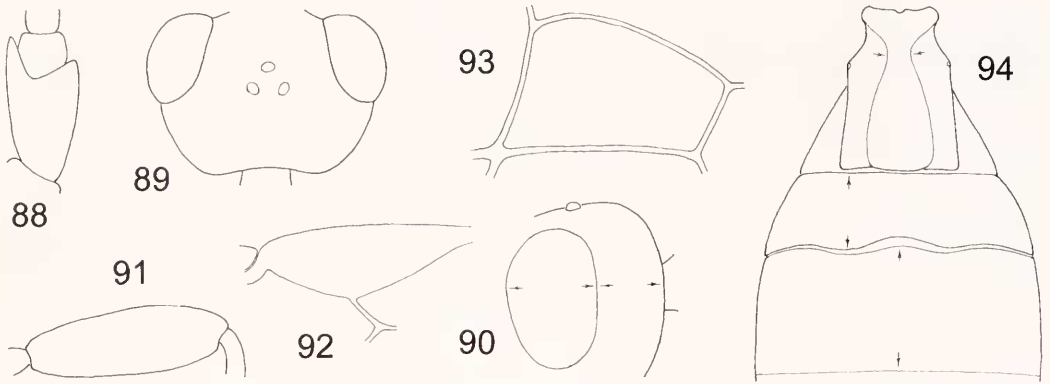
glued on a separate small card; (4) right fore wing missing, left hind wing somewhat creased; (5) left hind leg missing.

*Redescription of the female lectotype of Bracon paraguayensis.*—Body 9.5 mm long. Scape in outer-lateral view 1.5 times as long dorsally as broad apically (Fig. 77), in inner-lateral view as in Fig. 78. Both flagelli deficient, right flagellum with 13 and left flagellum with 17 flagellomeres. First flagellomere almost 1.4 times as long as broad and 17th flagellomere cubic. — Head in dorsal view (Fig. 79) less transverse, nearly 1.6 times as broad as long, eye clearly 1.4 times as long as temple, temple less rounded. Eye in lateral view 1.6 times as high as wide and just 1.3 times wider than temple, latter beyond eye evenly broad (Fig. 80).

Mesosoma in lateral view 1.8 times as long as high. Tarsomeres 2–4 of fore leg long, in lateral view third tarsomere twice and fourth tarsomere nearly 1.6 times as

long as broad apically (Fig. 81). Hind femur 3.1 times as long as broad and relatively more broadening distally (Fig. 82). Vein *r* one-fifth shorter than width of pterostigma (Fig. 83). First discal cell fairly high, *1-M* 1.66 times longer than *m-cn*, *1-SR+M* twice longer than *1-M*, *1-M* just bent (Fig. 84). — First tergite almost 1.2 times as long as broad behind, scutum wide; third tergite just 1.5 times as long medially as long second tergite laterally; suture between them trisinate (Fig. 85). Ovipositor sheath as long as hind tibia + tarsomeres 1–2 combined.

Scape black, flagellum brownish black. Ground colour of head and mesosoma black with reddish pattern: upper margin of eye, run of notaulix + hind field and lateral margin of mesoscutum, scutellum medially, metanotum and propodeum. Tegula reddish. Tergites reddish yellow, last two tergites dark brown. Legs tricoloured. Fore leg yellow, coxa brown; mid-



Figs 88–94. *Cyclaulax sicuaniensis* (Szépligeti): 88 = scape in outer-lateral view, 89 = head in dorsal view, 90 = head in lateral view, 91 = hind femur, 92 = pterostigma and vein *r* of fore wing, 93 = first discal cell of fore wing, 94 = tergites 1–3

dle leg: coxa blackish brown, trochanters + femur basally + tibia apically brownish, otherwise leg yellow; hind leg: coxa and trochanters black, femur blackish with very weak reddish tint distally, tibia proximodistally light brown to dark brown, tarsomeres brown to dark brown, basally and apically reddish to rusty. Wings light brown fumous, pterostigma yellow, veins brown to light brown.

*Redescription of the female paralectotype of Bracon paraguayensis.*—Similar to the female lectotype. Body 9 mm long. Both flagelli deficient: right flagellum with 42 and left flagellum with 28 flagellomeres. First flagellomere hardly 1.4 times as long as broad and 42nd flagellomere transverse, i.e. somewhat broader than long. – Head in dorsal view (Fig. 86) 1.5 times as broad as long, eye 1.4 times as long as temple. Corporal colour similar to that of lectotype except hind leg: coxa black, trochanters + femur + tibia apically dark brown, otherwise leg yellow, tarsi apically brownish.

Deviating features of 13 females (from the locality Paraguay: Hohenau; 12 females in Museum Budapest, 1 female in Museum Leiden). – Similar to the female lectotype and paralectotype. Body 6–9 mm long (6: 1 ♀, 7: 2 ♀♀, 7.5: 3 ♀♀, 8: 4 ♀♀, 8.5: 2 ♀♀, 9: 1 ♀). Antenna (4 ♀♀) about as long as (2 ♀♀) or somewhat longer than body (2 ♀♀) and

with 41, 43 and 47 antennomeres. Flagelli of further (i.e. 10 ♀♀) specimens either deficient or missing. Penultimate flagellomere subcubic, i.e. a bit longer than broad. Head in dorsal view 1.5–1.58 times as broad as long, eye 1.4–1.5 times as long as temple. Hind femur 3.1–3.3 times as long as broad distally. Vein *r* of fore wing as long as width of pterostigma (1 ♀, Fig. 87) or more or less shorter (Fig. 83). First tergite as long as broad behind (2 ♀♀).

Male and host unknown.

*Distribution.*—Paraguay.

*Taxonomic position.*—On the one hand, *C. paraguayensis* appears to be nearest to *C. lunatus* (Szépligeti) on the basis of their broad first tergites, and to *C. flexuosus* (Szépligeti) + *C. sicuaniensis* (Szépligeti) in view of their subcubic heads, on the other. Their separation is presented in key-couplets 4(5) – 5(4) and 13(18) – 17(16).

#### *Cyclaulax sicuaniensis* (Szépligeti) (Figs 88–94)

*Bracon sicuaniensis* Szépligeti, 1904: 185 ♀, type locality: "Peru: Sicuani", female holotype (designated by Papp in 1969) in Magyar Természettudományi Múzeum, Budapest; examined. – Szépligeti 1906: 591 (in key). Shenefelt 1978: 1538 (as *Bracon sicuaniensis*, literature up to 1906). Quicke 1991: 173 (as *Cyclaulax sicuaniensis* comb. n., type depository).



*Designation of the female holotype of Bracon sicuaniensis.*—(first label, my hand-script) "Peru / Sicuani", (reverse label with Szépligeti's hand-script) "Sicuani"; second label is the holotype card and the third label is with the inventory number 1550 (labels 1–3 were attached by me); fourth label is with the actual name *Cyclaulax sicuaniensis* (Szépligeti) given by Quicke in 1989. – Holotype is in fairly poor condition: (1) micropinned by mesosoma, pin covered with copper vitriol crystals; (2) missing: right antenna, left flagellum; (3) wings more or less creased; (4) legs less visible owing to the mounting (specimen on the micropin very near to the polyporus stage).

*Redescription of the female holotype of Bracon sicuaniensis.*—Body 6 mm long. Scape in outer-lateral view 1.65 times as long dorsally as broad apically (Fig. 88). – Head in dorsal view (Fig. 89) less transverse, 1.5 times as broad as long, eye 1.35 times as long as temple, temple clearly narrowing. Eye in lateral view 1.5 times as high as wide and 1.2 times wider than temple, temple beyond eye slightly narrowing ventrally (Fig. 90, see arrows).

Mesosoma in lateral view almost twice as long as high. Hind femur less broadening distally, 2.9 times as long as broad

distally (Fig. 91). Fore wing: vein *r* short, half as long as width of pterostigma (Fig. 92); first discal cell less high, 1–*M* 1.5 times as long as *m*–*cu*, 1–*M* weakly bent (Fig. 93). – First tergite 1.33 times as long as broad behind, its scutum less narrowing anteriorly; third tergite nearly 1.6 times longer medially than second tergite laterally; suture between them medially less sinuate (Fig. 94, see arrows). Ovipositor sheath shorter than hind tibia + tarsus combined.

Scape blackish. Head and mesosoma black, upper margin of pronotum and propodeum entirely with faint rusty tint. Metasoma reddish yellow, apically blackish. Legs black to brown, coxa + trochanters + femur of fore leg and femur of middle leg yellow. Wings dark brown fumous, pterostigma brown, veins dark to light brown.

Male and host unknown.

*Distribution.*—Peru.

*Taxonomic position.*—*C. sicuaniensis* is nearest to *C. flexuosus* (Szépligeti) in view of their cubic heads, suture between tergites 2–3 medially less deeply sinuate and first tergite clearly longer than broad behind; for their distinction see key-couplets 15(14) – 17(16).

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**KEY TO THE CYCLAULAX SPECIES DESCRIBED BY SZÉPLIGETI AND *C. GRANDICEPS* OF THE NEOTROPICAL REGION**  
(KEY BASED MAINLY ON THE FEMALES)

- 1 (6) First tergite broad, i.e. at least as long as broad behind (Figs 66, 85) or broader behind than long (Fig. 49). Suture between tergites 2–3 clearly trisinate (Figs 49, 66, 85). . .
- 2 (3) First tergite broader behind than long (Fig. 49). Inner spur of middle tibia slightly longer than half basitarsus (Fig. 43). Ground colour of body reddish yellow, head black. Eye in dorsal view almost 1.4 times as long as temple (Fig. 38). Vein *r* issuing proximally from middle of pterostigma (Fig. 48). Face entirely black. ♀: 12 mm. – Guiana . . . . . *C. grandiceps* Cameron, 1911
- 3 (2) First tergite at most as long as broad behind (Figs 66, 85). Inner spur of middle tibia at most as long as half basitarsus as usually (Fig. 63). Ground colour of body testaceous to reddish, reddish yellow with more or less black pattern. . . . .
- 4 (5) Eye in dorsal view 1.7 times as long as temple (Fig. 61). Vein *r* somewhat longer than width of pterostigma and issuing from its middle (Fig. 65). Pterostigma blackish brown. First tergite as long as broad behind (Fig. 66). Scape in lateral view 1.6 times as long ventrally as broad apically (Fig. 60). Head in dorsal view 1.55–1.6 times as

- broad as long (Fig. 61). Ground colour of body testaceous to reddish yellow with black to blackish pattern on tergi. Head black. Median granulose field of face with luniform yellow macula. ♀: 8–10 mm. – Peru . . . . . *C. lunatus* (Szépligeti, 1906)
- 5 (4) Eye in dorsal view 1.5–1.4 times as long as temple (Fig. 79). Vein *r* shorter than width of pterostigma and issuing from its middle (Fig. 83), exceptionally *r* as long as width of pterostigma. Pterostigma yellow. First tergite somewhat longer than broad behind (Fig. 85) and less usually as long as broad behind. Further details see couplet 14(15) . . . . . *C. paraguayensis* (Szépligeti, 1914)
- 6 (1) First tergite less broad, i.e. more or less longer than broad behind; suture between tergites 2–3 less variably trisinate (Figs 7, 14, 23, 33, 57, 75, 94). . . . .
- 7 (8) Head in dorsal view transverse, almost 1.9 times as broad as long, temple constricted, eye clearly twice as long as temple (Fig. 10). Hind femur 3.5–3.6 times as long as broad distally (Figs 12, 15). First tergite 1.55–1.6 times as long as broad behind, its lateral part narrow, third tergite about one-fifth longer than second tergite (Fig. 14). Tergites black; labrum + clypeus + cheek yellow or reddish yellow. ♀: 6.5–7 mm. – Peru . . . . . *C. binotatus* (Szépligeti, 1904)
- 8 (7) Head in dorsal view less transverse, 1.5–1.7 times as broad as long, temple rounded to receded (Figs 27, 52, 69, 79). . . . .
- 9 (12) Tarsomeres 2–4 of fore leg in lateral view short, third tarsomere nearly 1.4 times as long as high and fourth tarsomere cubic (Fig. 55, 72), fore tarsus yellow. . . . .
- 10 (11) Third tergite 1.5–1.4 times as long as second tergite; median situation of suture between tergites 2–3 deep (Fig. 57). Scutum of first tergite less narrow, i.e. lateral part of tergite less wide (Fig. 57). Hind femur 3.5–3.6 times as long as broad (Fig. 54). Ovipositor sheath as long as body. Only fore tarsus yellow. ♀: 7.5–8 mm. – Bolivia, Peru . . . . . *C. linurus* (Szépligeti, 1906)
- 11 (10) Third tergite nearly twice as long as second tergite; median situation of suture between tergites 2–3 less deep (Fig. 75). Scutum of first tergite narrow, i.e. lateral part of tergite wide (Fig. 75). Hind femur 2.9 times as long as broad (Fig. 73). Ovipositor sheath as long as metasoma. Fore and middle tarsi yellow. ♀: 9 mm. – Bolivia . . . . . *C. mesonurus* (Szépligeti, 1906)
- 12(9) Tarsomeres 2–4 of fore leg in lateral view long, third tarsomere twice and fourth tarsomere 1.3–1.5 times as long as high (Figs 4, 81), tarsus black. . . . .
- 13 (18) Head in dorsal view subcubic, 1.5–1.55 times as broad as long (Figs 27, 79, 86, 89). Scape in lateral view 1.5 times as long dorsally as broad apically (Figs 26, 77–78, 88).
- 14 (15) First tergite slightly (1.1–1.2 times) longer than (Fig. 85) or at most (and rather rarely) as long as broad behind. Hind femur more broadening distally, 3.1 times as long as broad distally (Fig. 82). Suture medially (between tergites 2–3) more sinuate (Fig. 85). Vein *r* as long as (Fig. 87) or, as usually, slightly shorter (Fig. 83) than width of pterostigma. Pterostigma and fore leg (except brownish coxa) yellow. ♀: (6–)8–9.5 mm. – Paraguay . . . . . *C. paraguayensis* (Szépligeti, 1904)
- 15 (14) First tergite clearly (1.3–1.4 times) longer than broad behind (Figs 33, 94). Hind femur less broadening distally (Figs 30, 91). Suture medially (between tergites 2–3) less sinuate (Figs 33, 94). Vein *r* shorter than width of pterostigma (Figs 31, 92). Pterostigma dark to blackish brown; fore leg either brown or yellow. . . . .
- 16 (17) Temple in dorsal view moderately rounded (Fig. 27). Scutum of first tergite more narrowing anteriorly (Fig. 33, see arrows). Vein *r* clearly longer than half width of pterostigma (Fig. 31). Fore coxa + femur and middle femur rusty brown. ♂: 6–7.5 mm. – Venezuela . . . . . *C. flexuosus* (Szépligeti, 1902)
- 17(16) Temple in dorsal view clearly narrowing (Fig. 89). Scutum of first tergite less narrowing anteriorly (Fig. 94, see arrows). Vein *r* half as long as width of pterostigma (Fig. 92). Fore coxa + femur and middle femur yellow. ♀: 6 mm. – Peru . . . . . *C. sicuanicensis* (Szépligeti, 1904)
- 18 (13) Head in dorsal view transverse, 1.6–1.7 times as broad as long (Figs 1, 19). Scape in lateral view 1.7 times to twice as long dorsally as apically (Figs 18, 60). . . . .

- 19 (20) Second tergite less short, third tergite nearly 1.4 times as long as second tergite; first tergite 1.2 times as long as broad behind, scutum of tergite wide (Fig. 23, see arrows). First discal cell less high, 1-M straight veins relatively thin as usually (Fig. 22). Hind femur 3.6–3.3 times as long as broad medially (Figs 21, 25). Fore coxa yellowish. ♀: 8–9 mm. – Peru . . . . . *C. enotatus* (Szépligeti, 1904)
- 20(19) Second tergite short, third tergite 1.6 times as long as second tergite; first tergite 1.4 times as long as broad behind, scutum of tergite less wide (Fig. 7, see arrows). First discal cell high, 1-M bent, veins relatively thick (Fig. 6). Hind femur 2.9–3.1 times as long as broad medially (Figs 3, 8). Fore coxa blackish brown. ♀: 8–9 mm. – Peru . . . . . *C. atriceps* (Szépligeti, 1904)

SPECIES OF THE GENUS  
CYCLAULAX CAMERON, 1911

- atriceps* (Szépligeti, 1904) (*Bracon*) – Peru
- binotatus* (Szépligeti, 1904) (*Bracon*) – Peru
- crassitarsis* (Brues, 1912) (*Bracon*) – Brazil
- enotatus* (Szépligeti, 1904) (*Bracon*) – Peru
- flexuosus* (Szépligeti, 1904) (*Bracon*) – Venezuela
- grandiceps* Cameron, 1911 – Guiana
- linurus* (Szépligeti, 1906) (*Bracon*) – Bolivia, Peru
- lunatus* (Szépligeti, 1906) (*Bracon*) – Peru
- mesonurus* (Szépligeti, 1906) (*Bracon*) – Bolivia, Peru
- paraguayensis* (Szépligeti, 1904) (*Bracon*) – Paraguay
- sicuanimensis* (Szépligeti, 1904) (*Bracon*) – Peru

*Remark.*—*Cyclaulax crassitarsis* (Brues) remains unknown to me, hence not included in the present article. The species was assigned to *Cyclaulax* by Quicke (1989: 119).

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